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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/937,286	09/25/2001	Muradin Abubekirovich Kumakhov	KUMAKHOV-002	9535

7590

09/06/2002

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EXAMINER

HO, ALLEN C

ART UNIT

PAPER NUMBER

2882

DATE MAILED: 09/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/937,286

Applicant(s)

KUMAKHOV, MURADIN
ABUBEKIROVICH

Examiner

Allen C. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 25 September 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 12-19 is/are rejected.
- 7) ☒ Claim(s) 9-11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input checked="" type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>4,5</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

The specification lacks section headings.

Appropriate correction is required.

2. 35 U.S.C. 112, first paragraph, requires the specification to be written in "full, clear, concise, and exact terms." The specification is replete with terms which are not clear, concise and exact. The specification should be revised carefully in order to comply with 35 U.S.C. 112, first paragraph. Examples of some unclear, inexact or verbose terms used in the specification are: "the point", "arising secondary radiation".

Claim Objections

3. Claim 7 is objected to because of the following informalities:

Lines 4-5, "using one or more x-ray sources 91)," should be deleted.

Appropriate correction is required.

4. Claim 10 is objected to because of the following informalities:

Line 5, "(4)" should be replaced by --(14)--.

Appropriate correction is required.

5. Claims 12-19 are objected to because of the following informalities:

6. "the x-ray sources" should be replaced by --the one or more x-ray source--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

7. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

8. Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

9. Claim 1 recites the limitation "the set f values". There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 1 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Onoguchi *et al.* (U. S. Patent No. 6,052,431).

Onoguchi *et al.* disclosed a device for producing the image of the internal structure of an object (12, 41) by x-rays, comprising: an x-ray system comprises an x-ray source (1, 44); a means (11, 42, 43) for positioning the object; a means (50) for data processing and image reconstruction; a means (8) for focusing the x-rays to a point; a means (x-ray optics attached to fluorescent x-ray detector 48) for collecting a secondary radiation; outputs of the detector is

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connected to the means for data processing and image reconstruction; a detector (inherent in the XY scan stage controller 51) for determining the coordinates of the point is connected with the means for positioning the object and the means for data processing and image reconstruction; a pattern of distribution (map) of the substance density (composition determined by fluorescence) is reconstructed on the base of values of density jointly with the corresponding values of coordinates (column 3, lines 9-14).

Claim Rejections - 35 USC § 103

12. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

13. Claims 1 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grodzins *et al.* (U. S. Patent No. 5,696,806).

Grodzins *et al.* disclosed a device for producing an image of the internal structure of an object by x-rays, comprising: an x-ray system comprising one or more x-ray sources (31); a means (moving the object in the x direction) for relative displacement of the object under study and the x-ray system; a means (inherent in computed tomography) for data processing and image; a means (36) for concentrating of radiation of the one or more x-ray sources in the zone, including the point (pixel); one or more means (44, 45) for arising secondary radiation; detectors (42, 43) of the radiation, placed at the output of the one or more means for collecting secondary radiation; outputs of the detectors are connected to the means for data processing and image

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(inherent); pattern of distribution (tomography) of the substance density (column 1, lines 26-29) in the object's area under study is reconstructed on the base of values of density jointly with the corresponding values of coordinates.

However, Grodzins *et al.* did not teach that the device further comprising detectors for determining the coordinates of the point are connected with the means for positioning the object under study, and the x-ray system.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to: (1) provide detectors for determining the coordinates of the point, since a person would be motivated to associate the output from each detector with a coordinate in order to create a tomographic image; (2) connect all the components to the means for data processing and image, since a person would be motivated to automate the data acquisition process.

14. Claims 2-7 and 12-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Onoguchi *et al.* (U. S. Patent No. 6,052,431) as applied to claims 1 and 8 above, and further in view of Yan *et al.* (U. S. Patent No. 5,812,631).

Onoguchi *et al.* disclosed a device for producing the image of the internal structure of an object (12, 41) by x-rays, comprising: a means (8) for focusing the x-rays to a point; a means (x-ray optics attached to fluorescent x-ray detector 48) for collecting a secondary radiation.

However, Onoguchi *et al.* did not teach using various x-ray optics (half lens, collimator with channels, etc.) for focusing and collecting x-rays.

Yan *et al.* disclosed various x-ray optics, including half lens (Fig. 4) and collimator with channels (Figs. 2 and 5), for focusing and collecting x-rays.

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to choose from among the known equivalents based solely on design choice absent any showing of criticality. The lack of criticality is demonstrated by applicant's claiming of a plurality of equivalent arrangements for focusing and collecting x-ray fluorescence.

Allowable Subject Matter

15. Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

16. The following is a statement of reasons for the indication of allowable subject matter:

The allowable subject matter in claims 9-11 refers to the x-ray device of claim 8, wherein the x-ray system comprises several x-ray sources.

Conclusion

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- (1) Hasegawa *et al.* (U. S. Patent No. 6,404,846 B1) describe a fluorescent x-ray method for determining x-ray alignment by luminescent changes.
- (2) Vu *et al.* (U. S. Patent No. 6,381,303 B1) describe an x-ray microanalyzer for thin films.
- (3) Smith (U. S. Patent No. 6,094,472) describes an x-ray backscatter imaging system.

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- (4) Rothschild *et al.* (U. S. Patent No. 5,930,326) describe a side scatter tomography system.
- (5) Xiao (U. S. Patent No. 5,745,547) describes a multiple channel optic.
- (6) Fraser *et al.* (U. S. Patent No. 5,727,044) describe a microchannel plate.
- (7) Gibson (U. S. Patent No. 5,570,408) describes a high-intensity, small diameter x-ray beam, capillary optic system.
- (8) Smith (U. S. Patent No. 5,181,234) describes an x-ray backscatter detection system.
- (9) Sayama *et al.* (U. S. Patent No. 5,062,127) describe a metals assay apparatus and method.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allen C. Ho whose telephone number is (703) 308-6189. The examiner can normally be reached on Monday - Friday from 8:00 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached at (703) 305-3492. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0530.

Allen C. Ho
Examiner
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ROBERT H. KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

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August 28, 2002